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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,640	07/19/2001	Andreas Muhlebach		7149

324 7590 04/03/2003

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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
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1713

8

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,640

Applicant(s)

MUHLEBACH ET AL.

Examiner

Tatyana Zalukaeva, Ph.D

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-6 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Claims 1, 2 and 6 in Paper No. 7 is acknowledged. Claim 4 has been rejoined with claims 1, 2 and 6, since Applicants admitted on the record that the subject matter of claim 4 would clearly be obvious over the subject matter of claims 1, 2 and 6. The traversal for restricting claims 3 and 5 is on the ground(s) that even if crosslinked, a polymer or oligomer of claim 5 would still fall within the scope of definitions of polymer of formula V. This is not found persuasive because of the reasons set forth in the restriction requirement. Namely, when the polymer is crosslinked, usually reaction between functional groups of polymer and those of a crosslinkers occur, thus producing a product with different functionality, different properties, and therefore different behavior. This is what crosslinking performed for.

Applicants have not rebutted the restriction of claim 3, that provide totally different end functionality. .

The requirement is still deemed proper and is therefore made **FINAL**.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1713

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al (U.S. 5,789,487) in view of Ueda et al (Macromolecules Vol. 31, No.3, 02, 1998, pp 557-62).

Matyjaszewski discloses an ATRP wherein block or graft (co)polymers with well defined

Art Unit: 1713

molecular architecture and narrow polydispersity index, in the presence of an initiating system comprising (i) an initiator having a radically transferable atom or group, (ii) a transition metal compound, and (iii) a ligand; the present invention is also directed to the synthesis of a macromolecule having at least two halogen groups which can be used as a macroinitiator component (i) to subsequently form a block or graft copolymer by an atom or group transfer radical polymerization process (abstract). Preferred initiators include C1 -C6 -alkyl esters of a 2-halo-C1 -C6 -carboxylic acid (such as 2-chloropropionic acid, 2-bromopropionic acid, 2-chloroisobutyric acid, 2-bromoisobutyric acid, etc.) (col. 10, lines 11-22).

In a synthesis of macroinitiator an example is the polyesterification of a diol (1.0 mol) with a diacid (0.95 mol) in the presence of 2-bromopropionic acid or chloroacetic acid (0.05 mol) to produce a polyester having a degree of polymerization (DP)=20 and .alpha.-halogen end group is provided in col. 17, lines 15-20.

Matyjaszewski teaches the process of ATRP using a concept of halogenated macroinitiator that participate formation of end groups of resulting bloc copolymers. The disclosure of Matyjaszewski differs from the instant claims by not disclosing trihydric or tetra- or pentahydric alcohols for esterification in order to obtain suitable macroinitiators. However, Matyjaszewski teaches the synthesis of multifunctional polymers which can be further used for the synthesis of block and graft polymers. Thus, Matyjaszewski motivates a person skilled in the art to employ compounds of multiple functionality in the synthesis of his polymers.

Ueda discloses living radical polymerization initiated by initiation system comprising di- or trifunctional dichloroacetates synthesized from corresponding multifunctional alcohols and Ru compounds in the presence of aluminum, compounds (abstract). The production of multiarmed polymers with controlled molecular weight and narrow polydispersity is accomplished. The components of such macroinitiators corresponding to those obtained from trihydric alcohols are shown as a structure 3a page 559.

Since both Ueda and Matyjaszewski disclose living radical polymerization with the goal to obtain well defined architecture, low polydispersity polymers, a person skilled in the art motivated by the teaching of Matyjaszewski would have found it obvious to utilize polyesters obtained from trihydric alcohols of Ueda in lieu of those obtained from dihydric alcohols of Matyjaszewski in order to induce more branching without sacrificing the architecture and polydispersity in the ATRP polymers of Matyjaszewski, and thus to arrive at the instantly claimed subject matter.

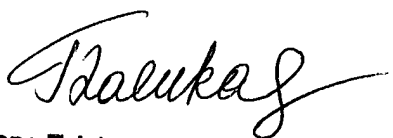
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva, Ph.D whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703)308-24-50. The fax phone numbers for

Art Unit: 1713

the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.


Tatyana Zalukaeva, Ph.D.
Primary Examiner
Art Unit 1713

March 27, 2003